

AMENDMENT TO ABSTRACT

Please replace the abstract with the following paragraph:

A multilayer brazeable metallization structure for diamond components and method for producing it are described. The brazeable metallization finds particular application for the attachment of diamond components such as heat spreaders in electronic packages that incorporate high power semiconductor devices. In the present invention, a diamond component is provided with a multilayer coating of metals including depositing a first layer of chromium for adhesion onto at least a portion of the diamond component, depositing a second barrier layer of a refractory metal for a barrier that may be alloyed with onto at least a portion of the chromium layer, and a top layer of copper, silver or gold for wetting. This top layer is thick (greater than 5 microns), without sacrificing resistance to delamination, particularly at brazing conditions. It is obtained by depositing a layer of a first metal onto at least a portion of the refractory metal layer, and depositing a layer of a second metal onto at least a portion of the first metal layer. The refractory metals for the second barrier layer include tungsten, molybdenum, tantalum, and niobium, or tungsten-chromium alloy. This multilayer metallization structure provides a robust interface between diamond and standard brazing alloys which are used to join the diamond to electrical leads or a flange made of metals such as copper-tungsten. The interfacial adhesion between the metallization and the diamond is sufficient to withstand exposure to brazing at temperatures less than or equal to 1,100°C in inert gas atmospheres that may contain hydrogen.